

What is claimed is:

1. An inclined engine where a cylinder (2) projects from a crank case (1) obliquely and upwardly, wherein

5 when seen in a direction parallel to a center axis (3) of a crank shaft (10), under a specific observation condition in which the cylinder projecting direction is deemed as an upper right side, a valve operating cam gear (5) meshes with a crank gear (4) from
10 a horizontal right side of the latter, a governor gear (6) being arranged in a space defined below a portion where the valve operating cam gear (5) meshes with the crank gear (4), the governor gear (6) engages with the valve operating cam gear (5) from a lower left side of
15 the latter.

2. The inclined engine as set forth in claim 1, wherein

 the cylinder (2) has a lower portion (2a) projected into the crank case (1) and the lower portion
20 2a of the cylinder 2 has an outer peripheral surface opposed to an interior area of the crank case 1, the governor gear (6) having a lower portion immersed into oil (8) within an oil reservoir (7) and having an upper portion arranged above the oil (8) within the oil
25 reservoir (7), under the specific observation condition, the valve operating cam gear (5) being arranged on an upper right side of the governor gear (6).

3. The inclined engine as set forth in claim 2, wherein

30 under the specific observation condition, when the engine is in operation, the governor gear (6) rotates in a counter-clock wise direction and the valve operating cam gear (5) rotates in a clockwise direction,
 under the specific observation condition, the
35 valve operating cam gear (5) and the outer peripheral

surface of the lower portion (2a) of the cylinder (2) being arranged at such positions that they overlap each other,

when seen in a direction perpendicular to the center axis (3) of the crank shaft, the valve operating cam gear (5) being made to position adjacent the outer peripheral surface of the lower portion (2a) of the cylinder (2).

4. The inclined engine as set forth in claim 2, wherein

the lower portion (2a) of the cylinder (2) has the outer peripheral surface provided with a horizontally directed cooling fin (9).

5. The inclined engine as set forth in claim 2, wherein

the governor gear (6) is smaller than the valve operating cam gear (5) in thickness.

6. The inclined engine as set forth in claim 1, wherein

under the specific observation condition, a reciprocally moving balancer (11) positions leftwardly and downwardly of the crank shaft (10).

7. The inclined engine as set forth in claim 1, wherein

a reciprocally moving balancer (11) is partly immersed in oil (8) within an oil reservoir (7) and splashes up the oil (8) when it moves up.

8. The inclined engine as set forth in claim 7, wherein

the reciprocally moving balancer (11) has an upper surface provided with a groove (14) which opposes to a large-diameter end portion (13) of a connecting rod (12),

under the specific observation condition, the groove (14) being formed between a front side and an

inner wall.

9. The inclined engine as set forth in claim 1, wherein

when it is applied to a diesel engine, a valve
5 operating cam shaft (15) is arranged in a space defined
below the lower portion (2a) of the cylinder (2) and is
provided with a fuel injection cam (16),
under the specific observation condition, a fuel
injection pump (17) being horizontally arranged on a
10 horizontal right side of the fuel injection cam (16).

10. The inclined engine as set forth in claim 1,
wherein a governor lever (18) is arranged in a space
defined below a valve operating cam shaft (15) and is
partly immersed into oil (8) within an oil reservoir (7).

15 11. The inclined engine as set forth in claim 10,
wherein

when arranging a mechanical governor (19), a
governor holder (21) is provided on an engine's wall
(20) and supports the governor lever (18) through a
20 pivot axis (22), the governor holder (21) being provided
with a stopper (24) for the governor lever (18), the
stopper (24) receiving a swing (18a) of the governor
lever (18) in a fuel amount decrease direction to
thereby regulate an upper limit of an opening angle of a
25 governor weight (33).

12. The inclined engine as set forth in claim 11,
wherein

a stopper pin (25) is utilized as the stopper
(24) and the pivot axis (22) is internally fitted into a
30 pivot boss (26) of the governor holder (21), the pivot
boss (26) being opened to provide a stopper pin hole
(27), the stopper pin (25) being inserted through the
stopper pin hole (27) and the pivot axis (22) in series
along a radial direction of each of them and fixing the
35 pivot axis (22) to the pivot boss (26), the stopper pin

(25) projecting from the pivot boss (26), the projection portion being made to receive the governor lever (18).

13. The inclined engine as set forth in claim 12, wherein

5 the governor holder (21) is provided with a seating portion (28) which attaches the governor holder 21 to the engine's wall (20), the seating portion (28) being provided with a knock pin hole (30) into which a knock pin (31) is struck, on positioning the governor
10 holder (21) with respect to the engine's wall (20) through the struck pin (31),

when seen in a direction parallel to a center axis of the stopper pin hole (27), the stopper pin hole (27) and the knock pin hole (30) overlapping mutually,
15 the knock pin (30) extending to a position that is an end to which the stopper pin (25) is inserted through the stopper pin hole (27), thereby communicating the knock pin hole (30) with the stopper pin hole (27).

14. The inclined engine as set forth in claim 11,
20 wherein

an input block (32) is swingably attached to an end portion of a swing of the governor lever (18), and when conveying a governor force from the governor weight (33) to the end portion of the swing of the governor lever (18) through the input block (32), a rod
25 (34) projects from the input block (32) and the governor holder (21) is opened to provide a swing limitation hole (35) through which the rod (34) is inserted, thereby limiting a swing of the input block (32).

30 15. The inclined engine as set forth in claim 9, wherein a fuel tank (36) is arranged above the crank case (1).

16. The inclined engine as set forth in claim 1, wherein under the specific observation condition, a
35 starter motor (37) is arranged on an upper left side of

the crank case (1).

17. The inclined engine as set forth in claim 1, wherein a divided combustion chamber (48) is arranged at a higher side portion of a cylinder head (38).

5 18. The inclined engine as set forth in claim 1, wherein when arranging a divided combustion chamber (48) at a higher side portion of a cylinder head (38), a cooling air passage (39) is formed at a higher side portion of the cylinder (2) which has a higher and outer
10 peripheral surface opposed to a higher side portion of a cylinder block, the cooling air passage (39) having an inlet (40) facing a terminal end portion (42) of air transmission under pressure performed by a fan case (41).

15 19. The inclined engine as set forth in claim 1, wherein when arranging a divided combustion chamber (48) at a higher side portion of a cylinder head (38), a cooling air passage (23) is formed on a side of the divided combustion chamber (48) while opposing to a peripheral wall of the divided combustion chamber (48),
20 the cooling air passage (23) having an inlet (29) facing a terminal end portion (42) of air transmission under pressure performed by a fan case (41).

20. The inclined engine as set forth in claim 18, wherein a starter gear (43) is arranged at a position
25 (58) away from a passage (57) for the air transmission under pressure, which extends from a starting end portion (56) of the fan case (41) to the terminal end portion (42) thereof.

21. The inclined engine as set forth in claim 1,
30 wherein under the specific observation condition, when arranging an oil pump (45) near a portion (44) of an engine's wall (20) for attaching a working machine, a pump case (46) of the oil pump (45) projects inwards of the engine's wall (20).

35 22. The inclined engine as set forth in claim 10,

wherein when attaching the governor lever (18) which
comprises a pair of levers (18A) and (18B), a governor
holder (21) is attached to an engine's wall (20) and is
provided with a pair of an upper pivot boss (26A) and a
5 lower pivot boss (26B), a pivot axis (22) having its
upper and lower portions internally fitted into the pair
of the upper and lower pivot bosses (26A) and (26B),
respectively and supporting the paired levers (18A) and
(18B), the lower pivot boss (26B) receiving the weight
10 of the one lever (18B) and the upper pivot boss (26A)
receiving the weight of the other lever (18A).

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